

Remarks

The following remarks are responsive to the September 24, 2007 Final Office Action. Reconsideration is respectfully requested.

Status of the Claims

Claim 27 is amended. Claims 19-22 and 24-38 are pending.

Support for Claim Amendments

Claim 27 is amended to clarify the invention. Support for the amendment to Claim 27 is found in the specification on page 6, lines 19-22. No new matter is added.

Objection to the Specification

The specification was objected to for failing to include a description of Figure 8 in the Brief Description of the Drawings section. In the Preliminary Amendment filed with the application on April 5, 2006, a description of Figure 8 was provided. Accordingly, the Examiner is requested to reconsider and withdraw the objection.

Rejections under 35 U.S.C. § 102(b)

Claims 27, 31-32, and 38 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,540,235 (Wilson).

Applicants' invention relates to a process and apparatus for the non-invasive *in vivo* characterization and analysis of the reactivity and/or hypersensitivity of a skin zone on the face by determining the conductivity of the nerves in the facial region.

Wilson relates to an adaptor for neurophysiological monitoring with a personal computer. The monitoring system includes a first detection circuit for allowing detection of analog neurophysiological signals at a first site on a patient, a data processing circuit for amplifying analog signals and converting to digital signals, and an output device for sending the digital signals to a personal computer for processing. The system also

includes a second detection circuit connected to the data processing circuit for allowing detection of analog signals at a second site on the patient, and may also include a stimulation device connected to the power supply for administering a neurophysiological stimulation to the patient.

Wilson does not specifically disclose electrodes on the facial area. Wilson also does not disclose a method for determining the conductivity of nerves in the facial region of the skin, as correctly asserted by the Examiner (page 5 of the Action). The Examiner alleges, however, that the non-invasive electrode is suitable for (and thus capable of) detecting a signal representative of the electrical activity of a sensory nerve of a facial skin substrate (page 3 of the Action). Contrary to the allegations of the Examiner, Wilson does not disclose that the apparatus is suitable for (or capable of) determining the conductivity of nerves in the facial region of the skin.

For a reference to anticipate, each element of the claim must be present. Since Wilson fails to disclose electrodes on a facial skin substrate or an apparatus for determining the conductivity of nerves in the facial region as in Claim 27 (from which Claims 31-32, and 38 depend), Wilson does not anticipate the subject matter of the above claims, and the rejection should be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Under 35 U.S.C. § 103(a), Claims 19-22, 24-27, 30-32, and 38 were rejected as being unpatentable over Wilson in view of U.S. Patent 4,817,628 (Zealear); Claims 28-29 were rejected as being unpatentable over Wilson in view of U.S. Patent No. 5,003,978 (Dunseath); Claims 33-35 were rejected as unpatentable over Wilson in view of U.S. Patent No. 6,026,321 (Miyata); and Claims 36-37 were rejected as being unpatentable over Wilson in view of Miyata and further in view of U.S. Patent No. 4,257,010 (Bergman).

Rejection based on Wilson and Zealear

The arguments made above concerning the inapplicability of Wilson are hereby reasserted as if set forth at length.

Zealear relates to a system and method for evaluating neurological function controlling muscular movements, and for evaluating peripheral nerve function. The system includes an accelerometer sensor (affixed to a body part by suction) for measuring evoked movement, a stimulus electrode assembly for activating a nerve, and a portable DC powered device. The device has three circuits: (1) a sensor circuit for detecting movements; (2) a stimulus circuit for delivering stimuli; and (3) a timing circuit for timing both the delivery of stimuli and extraction of processed sensor information. The system assesses nerve function by measuring the mechanical activity evoked by the stimulation. Zealear does not disclose determining the conductivity of nerves *in vivo*.

Wilson fails to disclose or teach one skilled in the art to detect electrical signals from a facial skin substrate or to determine the conductivity of nerves *in vivo*. In addition, there is absolutely no disclosure in Zealear concerning conductivity. Instead, Zealear determines nerve conduction, which is distinguishable from nerve conductivity.

Conduction is the transmission or transport of an electrical charge, whereas conductivity is the ability or power of a material to conduct or transmit. The rate of transmission is measured to determine conduction, whereas current is measured to determine conductivity. Thus, the mere disclosure of electrodes on a facial region in Zealear (which measures nerve conduction), combined with the disclosure of Wilson, cannot be fairly said to render obvious the subject matter of the claims.

Since Zealear fails to teach the determination of the conductivity of nerves *in vivo*, the addition of Zealear to Wilson does not cure the deficiencies thereof. In addition, no line of reasoning is provided why one skilled in the art would have found it obvious, after reading Zealear, to measure nerve conductivity instead of nerve conduction. Since there is no teaching or convincing line of reasoning provided why

one skilled in the art would have found it obvious to detect electrical signals from a facial skin substrate or to determine the conductivity of the nerves *in vivo*, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection based on Wilson and Dunseath

The Examiner alleges, with regard to Claims 28-29, that Wilson does not disclose the electrode as being non-polarizable, or comprising a material selected from the group consisting of stainless steel, tungsten, noble metals and mixtures thereof, and that Dunseath discloses this aspect.

Dunseath relates to a non-polarizable dry biomedical electrode for detection of biopotentials on the surface of a skin of a living body. The electrode includes a conductive substrate with a conductive adhesive.

As set forth above, Wilson fails to disclose or teach detecting electrical signals from a facial skin substrate or determining the conductivity of nerves *in vivo*. The disclosure by Dunseath of various conductive materials (none of which includes stainless steel as alleged by the Examiner) does not cure the deficiencies of Wilson. Since there is no teaching, or convincing line of reasoning provided to one skilled in the art to detect electrical signals from a facial skin substrate or to determine the conductivity of nerves *in vivo*, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection based on Wilson and Miyata

The Examiner alleges, with regard to Claims 33-35, that Wilson does not disclose at least one preamplifier with high input impedance over a voltage range of from -3 to +3 volts, and that Miyata discloses this aspect.

Miyata relates to an apparatus which includes: a pair of conductors; an amplifier; a transmitter; a voltage-divider circuit; and a compensator circuit, for measuring

electrical potential variation in a human body. Miyata does not measure conductivity of nerves on a skin substrate, but instead measures myoelectric (muscle) potentials.

As set forth above, Wilson fails to disclose or teach detecting electrical signals from a facial skin substrate or determining the conductivity of nerves *in vivo*. The disclosure by Miyata of a preamplifier does not cure the deficiencies of Wilson. Since there is no teaching, or convincing line of reasoning provided to one skilled in the art to detect electrical signals from a facial skin substrate or to determine the conductivity of nerves *in vivo*, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection based on Wilson and Miyata and Bergman

The Examiner alleges, with regard to Claims 36-37, that Wilson, modified by Miyata, discloses at least one preamplifier connected to the non-invasive measuring electrode, but does not disclose the at least one preamplifier connected to the non-invasive measuring electrode by a shielded cable, and that Bergman discloses connecting wires surrounded by a shielding to prevent interference.

Bergman relates to a method and apparatus for sensing and maintaining oscillations in an oscillating system. The apparatus includes a signal transmitter.

As set forth above, Wilson fails to disclose or teach one skilled in the art to detect electrical signals from a facial skin substrate or to determine the conductivity of nerves *in vivo*. The disclosure by Miyata of a preamplifier does not cure the deficiencies of Wilson. The additional disclosure by Bergman of shielded wires does not cure the deficiencies of Miyata and Wilson. Since there is no teaching, or convincing line of reasoning provided to one skilled in the art to detect electrical signals from a facial skin substrate or to determine the conductivity of nerves *in vivo*, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

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Fees

No fees are believed due, but the Commissioner is authorized to charge any fees deemed due (or credit any balance) to Deposit Account No. 50-1177.

Conclusion

It is respectfully submitted that Claims 19-22 and 24-38 are in condition for allowance. A Notice of Allowance is respectfully requested. If anything further is needed to advance the allowance of this application, the Examiner is respectfully requested to contact Applicants' attorney at the telephone number indicated below.

Respectfully submitted,

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